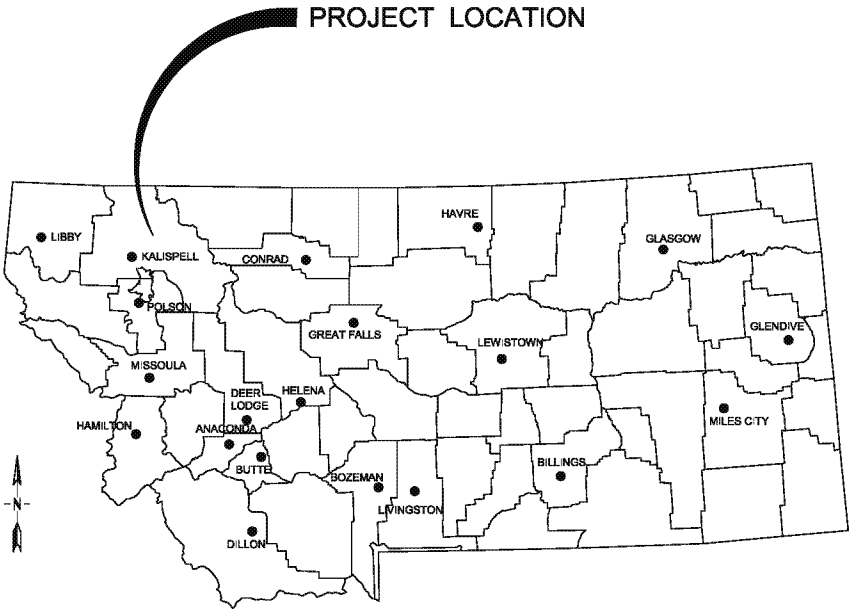


FLATHEAD RIVER BANK STABILIZATION STAGE II  
COLUMBIA FALLS ALUMINUM COMPANY  
COLUMBIA FALLS, MONTANA

SEPTEMBER 2017

PRELIMINARY

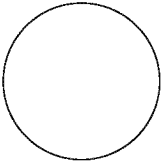


LOCATION MAP  
NO SCALE

PREPARED BY:  
**Morrison  
Maierle**  
engineers • surveyors • planners • scientists  
125 Schoolhouse Loop, Kalispell, MT 59901  
Phone: 406.752.2216 | Fax: 406.752.2391

SHEET INDEX

SHEET NO.	TITLE
C-1	FLATHEAD RIVER BANK STABILIZATION STAGE II RIPRAP PLAN
C-2	FLATHEAD RIVER BANK STABILIZATION STAGE II RIPRAP CROSS SECTIONS
C-3	FLATHEAD RIVER BANK STABILIZATION STAGE II RIPRAP PROFILE
D-1	FLOOR PANEL REMOVAL PLAN



APPROVED BY: \_\_\_\_\_

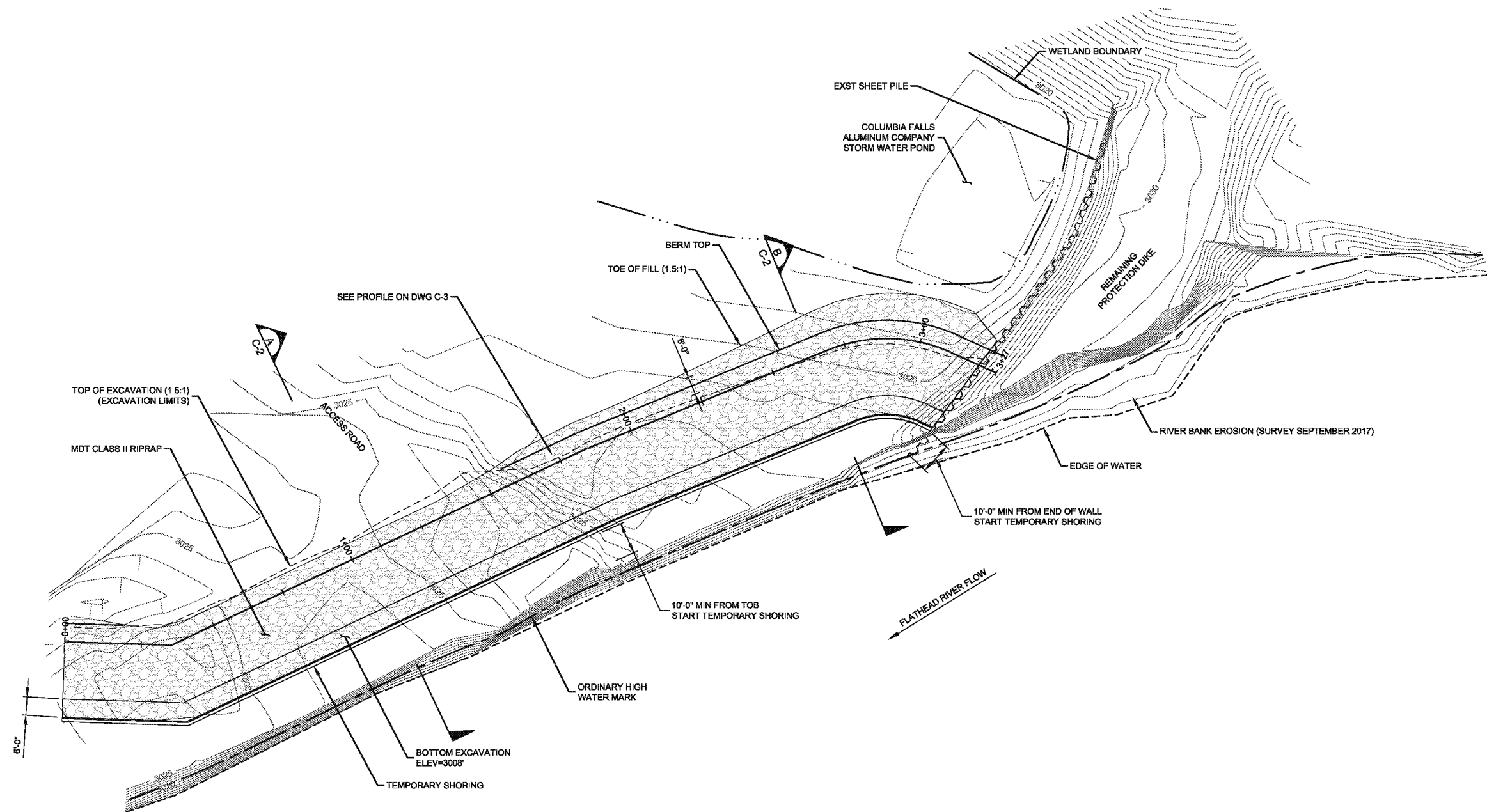
APPROVED BY: \_\_\_\_\_



VICINITY MAP  
NO SCALE

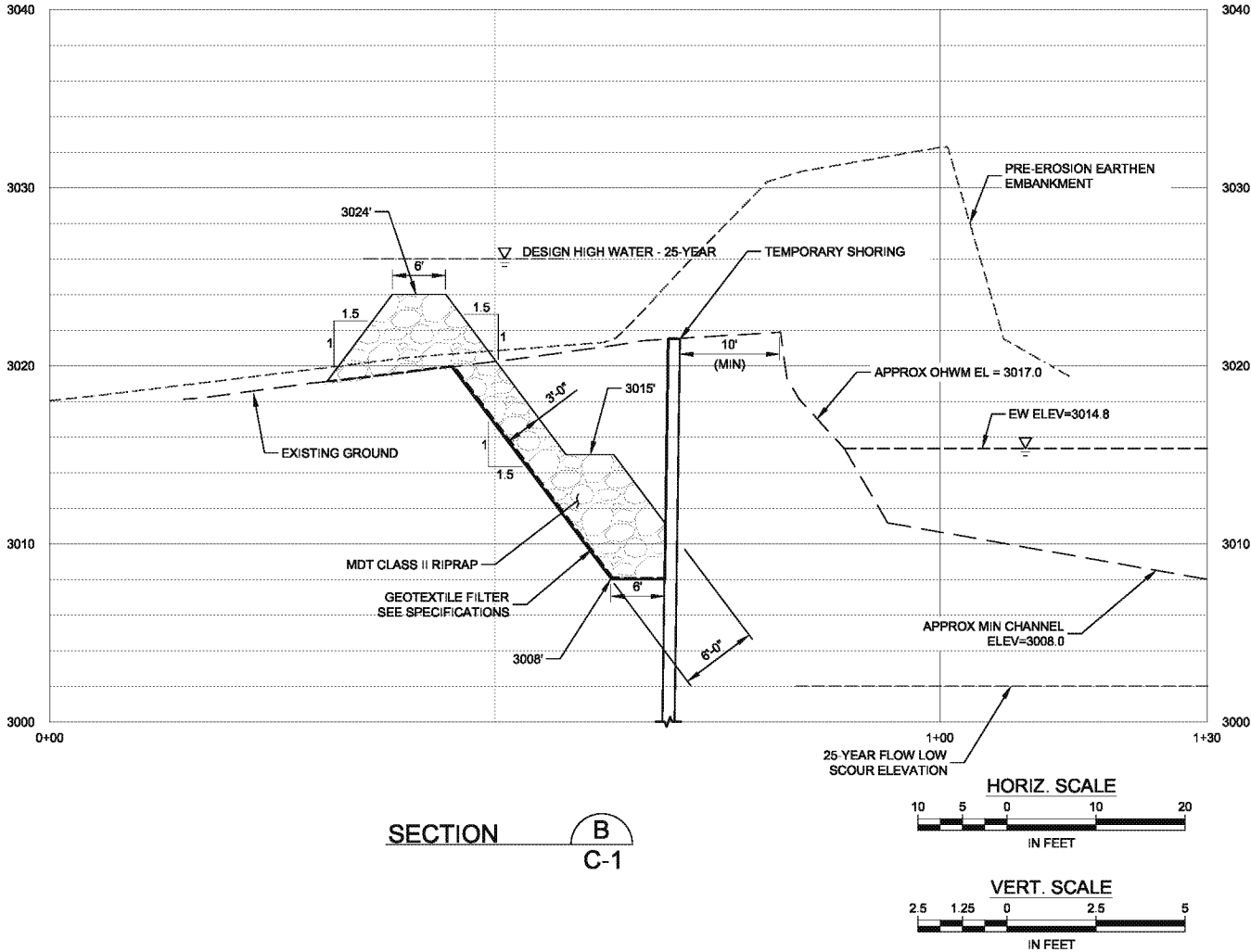
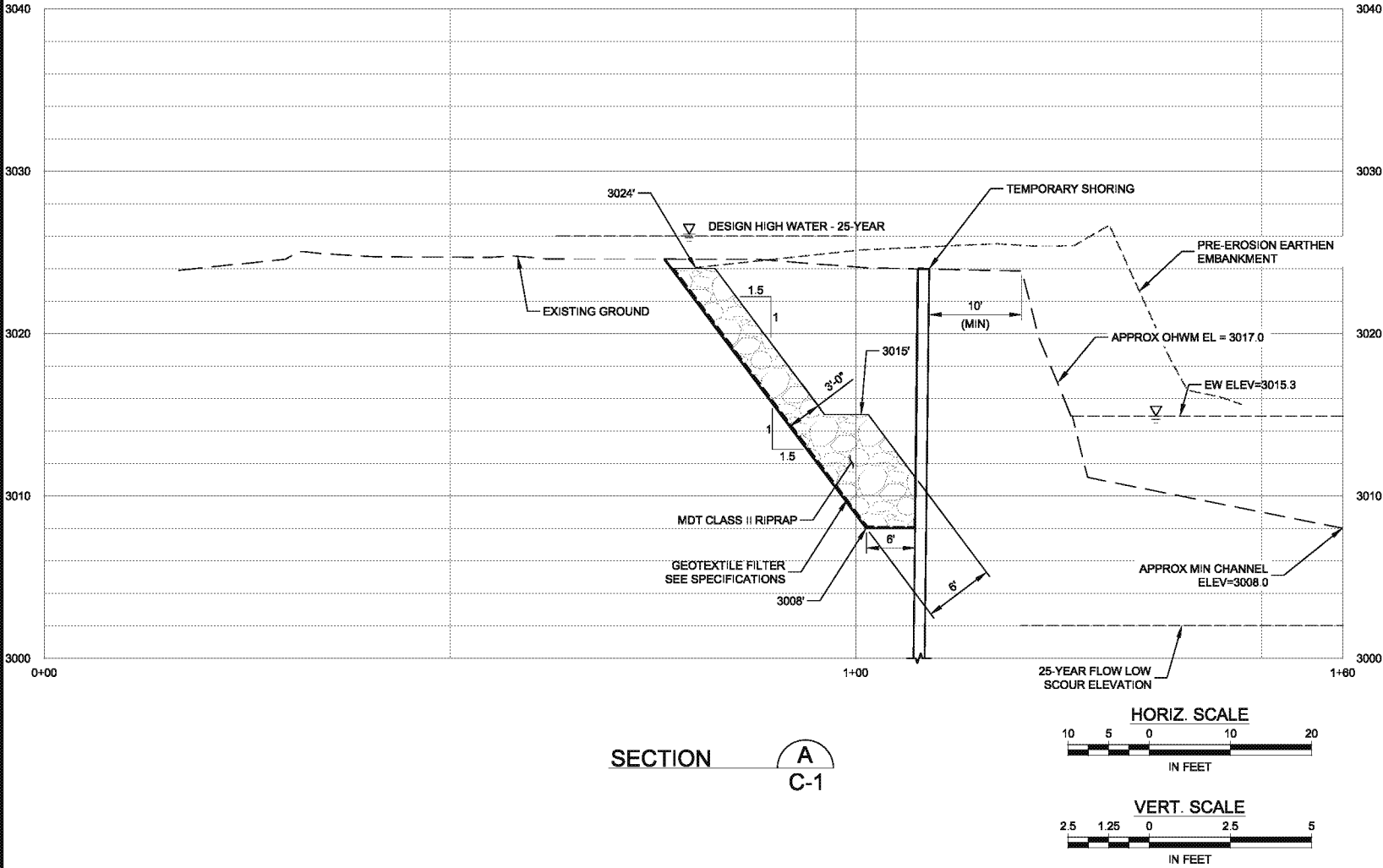
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SET NO. \_\_\_\_\_  
MMI PROJECT NO. 5402.001



**PRELIMINARY**  
09/2017

- NOTE:
1. PLACE EXCAVATED MATERIAL BACK INTO EXCAVATION AFTER RIPRAP INSTALLATION AND COMPACT IN LAYERS NO THICKER THAN 12-INCHES.
  2. INSTALL TEMPORARY SHORING OF SUFFICIENT STRUCTURAL CAPACITY TO RETAIN THE RIVER BANK AT THE DESIGN EXCAVATION DEPTH. TEMPORARY SHORING PLAN DESIGN MUST BE PERFORMED BY AN ENGINEER LICENSED IN THE STATE OF MONTANA. SUBMIT TEMPORARY SHORING SHOP DRAWINGS FOR REVIEW. DO NOT BEGIN WORK UNTIL TEMPORARY SHORING PLAN HAS BEEN APPROVED.
  3. STAGED REVETMENT CONSTRUCTION IS ACCEPTABLE.



PRELIMINARY  
09/2017

REVISIONS				
NO.	DESCRIPTION	BY	DATE	

VERIFY SCALE!  
THESE PRINTS MAY BE REDUCED.  
LINE BELOW MEASURES ONE INCH  
ON ORIGINAL DRAWING  
MODIFY SCALE ACCORDINGLY!



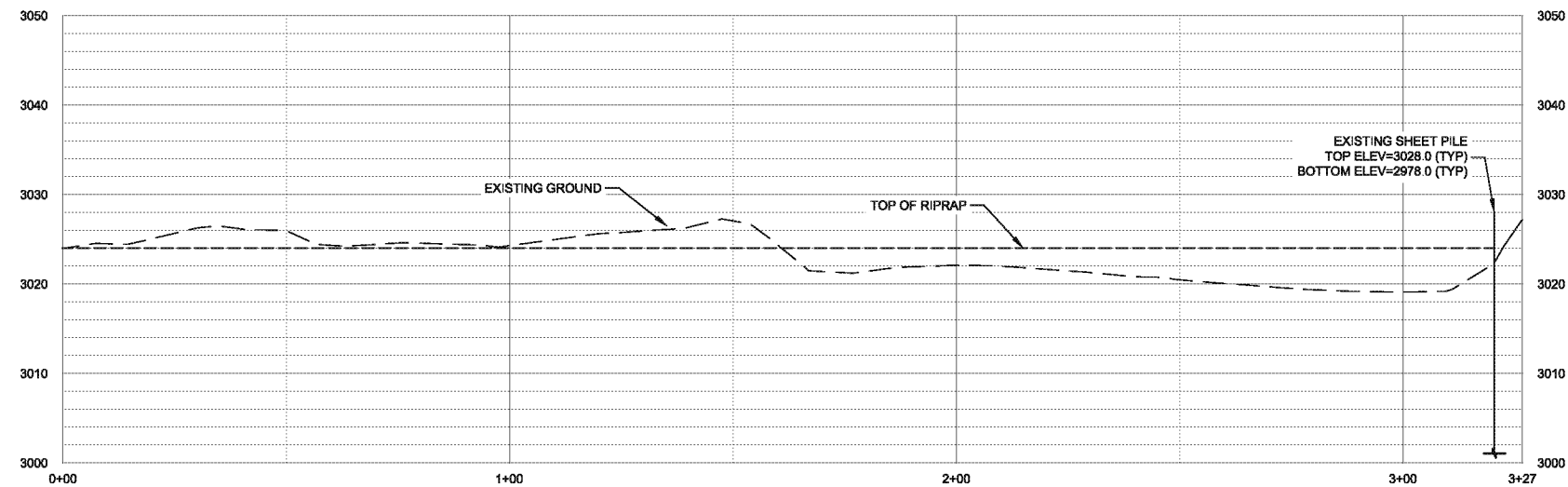
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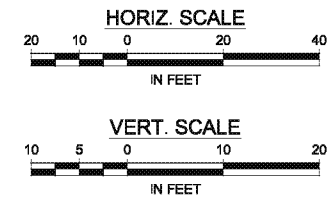
DRAWN BY: JAC  
DSGN. BY: LDC  
APPR. BY:   
DATE: 09/2017  
Q.C. REVIEW  
BY:   
DATE:

COLUMBIA FALLS ALUMINUM COMPANY  
COLUMBIA FALLS MONTANA  
FLATHEAD RIVER BANK STABILIZATION STAGE II  
RIPRAP CROSS SECTIONS


PROJECT NUMBER  
5402.001  
SHEET NUMBER  
DRAWING NUMBER  
C-2



PROFILE C  
C-1



**PRELIMINARY**  
09/2017

<div>VERIFY SCALE!</div> <div>THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING</div> <div>MODIFY SCALE ACCORDINGLY!</div>	REVISIONS				<div><div>Morrison Maierle</div><div>engineers • surveyors • planners • scientists</div></div> <div><div><div></div><div></div></div><div>125 Schoolhouse Loop Kalispell, MT 59901</div><div><div></div><div></div></div><div>406.752.2216</div><div><div></div><div></div></div><div>www.m-m.net</div></div> <div>COPYRIGHT © MORRISON MAIERLE, INC., 2017</div>	<div>DRAWN BY: JAC</div> <div>DSGN. BY: LDC</div> <div>APPR. BY:</div> <div>DATE: 09/2017</div> <div>Q.C. REVIEW</div> <div>BY:</div> <div>DATE:</div>	<div>COLUMBIA FALLS</div> <div>COLUMBIA FALLS ALUMINUM COMPANY</div> <div>MONTANA</div> <div>FLATHEAD RIVER BANK STABILIZATION STAGE II RIPRAP PROFILE</div>	PROJECT NUMBER 5402.001
	NO.	DESCRIPTION	BY	DATE				SHEET NUMBER
								DRAWING NUMBER
								C-3

U:\5402 COLUMBIA FALLS ALUMINUM COMPANY\001\CAD\1\SHEETS\2017\GRADING SHORING DWG PLOTTED BY:DAVID A. HALLSTEN ON Sep/25/2017

NOTES:

1.

CONCRETE FLOOR PANELS RANGE IN SIZE FROM 4'x4.5'x0.5' TO 4.5'x8'x0.5'. THEY ARE COMPOSED OF STEEL ANGLE FRAMES, REBAR REINFORCING, AND CONCRETE. FLOOR PANELS HAVE VARYING LEVELS OF CONCRETE DECOMPOSITION.
2.

REMOVAL METHOD APPROVED IN THE OWNERS PERMIT ALLOWS CRANE OR WINCH CABLE. PANEL GRASPING METHOD MAY INCLUDE BEAM CLAMP, WEB STRAP, GRAPPLING HOOK, AND ROCK GRAPPLE.
3.

WATER DEPTH AT PANEL LOCATION VARIES FROM ZERO TO SIX FEET.

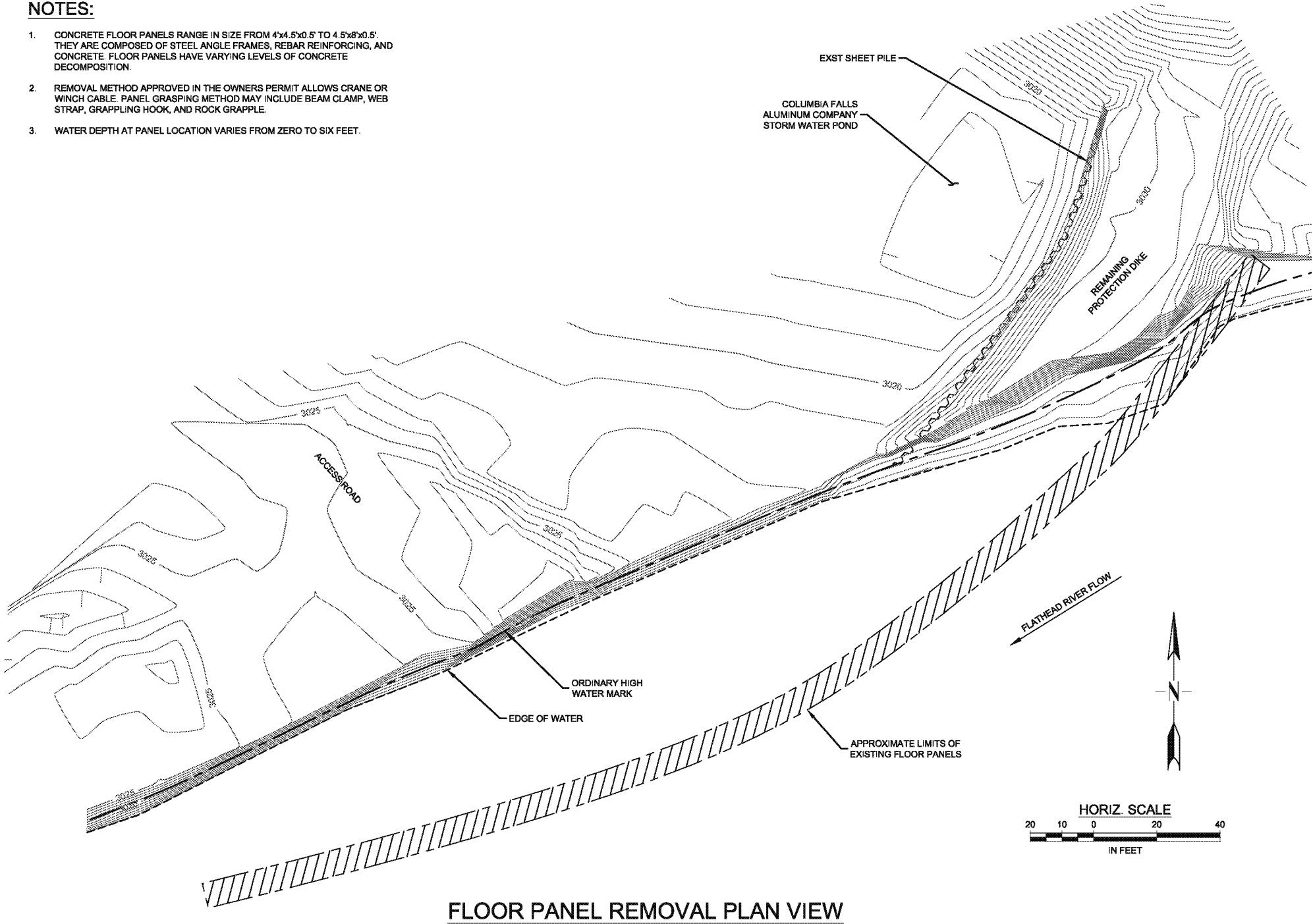


PHOTO A

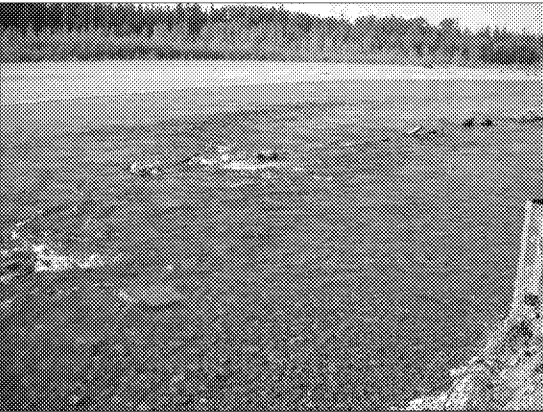


PHOTO B

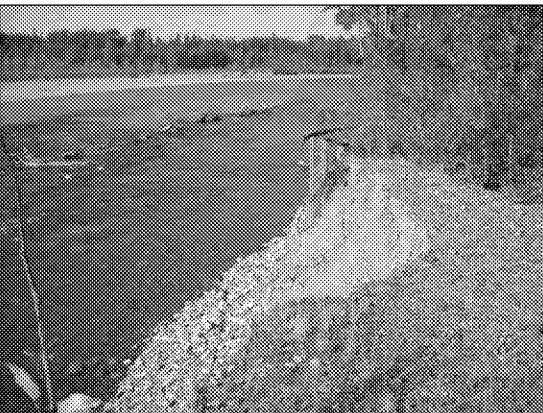


PHOTO C

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VERIFY SCALE!  THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.  MODIFY SCALE ACCORDINGLY!	REVISIONS			
	NO.	DESCRIPTION	BY	DATE

U:\5402 COLUMBIA FALLS ALUMINUM COMPANY\001\CAD\SHETS\2017\0-1 DWG PLOTTED BY: JERRY A. CHAMBERS ON Sep/18/2017

Morrison  
Maierle

engineers · surveyors · planners · scientists

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Q.C. REVIEW
BY:
DATE:

COLUMBIA FALLS		COLUMBIA FALLS ALUMINUM COMPANY	
		MONTANA	
		FLOOR PANEL REMOVAL	

PROJECT NUMBER 5402.001
SHEET NUMBER
DRAWING NUMBER D-1